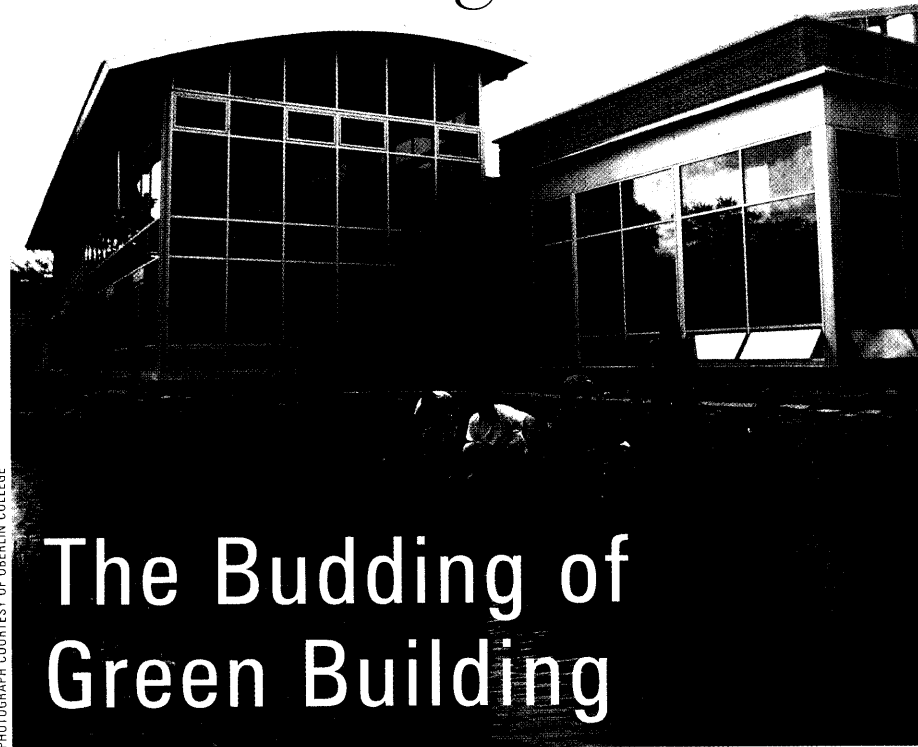


inventing the future



PHOTOGRAPH COURTESY OF OBERLIN COLLEGE

The Budding of Green Building

BY ANTON ZUIKER

Get ready to live in a green house.

No, not a humid glass hothouse, or a bungalow painted forest green.

Environmentally friendly and healthy homes are right around the corner.

"Around the country, green building is taking off," says Sadhu Johnston, director and co-founder of the Cleveland Green Building Coalition, which was formed in 1999 to promote local green building – an approach to construction that seeks to minimize waste and improve energy efficiency. "In ten years, everyone will be doing it.

"Our strategy now is to get the message out to local builders, so projects like the EcoVillage and GreenBuilt Homes are perceived as mainstream and not fringe activities," says Johnston.

Last September, two important buildings opened: in Oberlin, the much-anticipated Adam Joseph Lewis Center for Environmental Studies, and in Cleveland's Slavic Village neighborhood, an energy-efficient GreenBuilt home. The first is getting international attention, the other growing local interest.

David Orr, professor of environmental studies at Oberlin, sparked the Lewis Center project nearly ten years ago. He wanted to teach in a building that itself taught – about how it is cooled, heated, and lighted. One can't teach environmental principles in an energy-squandering building, he argues. What he has now is an award-winning experimental building that recycles and purifies its water, will soon produce more electricity than it uses, and integrates architecture, ecology and landscaping.

Such ecological design is taking off everywhere, says Orr, who is "buried in requests for information about the Lewis Center." Colleges across the country are interested in Oberlin's environmental studies program, and the Lewis Center is influencing prestigious programs at Yale and Harvard universities.

The building's roof has photovoltaic cells, which collect solar energy. The inventive Living Machine treats the building's wastewater, using microbes, plants and snails. The auditorium uses only wood from certified sustainable forests. The indoor climate is controlled by geothermal energy.

Oberlin's Lewis Center for Environmental Studies: a small experimental building that's having "a large impact," says David Orr, "on the nation's green building thinking."

"A lot of green building principles are incorporated into that building," says Johnston. Use nontoxic, local and recycled materials. Reduce total lifetime energy use. Make efficient use of natural resources.

"The Lewis Center is the catalyst for a majority of the green-building work being done in Cleveland," says City Architecture's Julie Trott. The firm's recent renovation of Trinity Cathedral is one example. "The church wanted a sustainable building that was environmentally conscious," says Trott, City Architecture's green expert. "So it has geothermal heating, with 317 wells in the earth that are used to heat and cool the cathedral's water." The upfront costs for such technology are higher, she says, but over the life of the building, replacement costs will outweigh the investment, because "the earth is our main piece of equipment."

Cleveland's other model for green building is its first green house on East 71st Street.

"For twenty years, I wanted to build a super-friendly energy-efficient house," says local housing troubleshooter Jim LaRue. "After years of trying to persuade people, I thought I should just do it myself."

He and his partners formed GreenBuilt Homes Ltd. to build that house. The tan home has an airtight building envelope that minimizes heat loss and prevents moisture from entering the building, and the highly efficient gas furnace also heats the bath water. But here's the real twist: The furnace gets its fresh air not from inside the house, as in most of our homes, but from outside, and the exhaust from the gas combustion is piped directly outside. Gas costs for the first three months totalled only \$104, LaRue says – and that's with the current

high natural gas prices. The house also uses recycled siding and insulation, with carpet made from plastic bottles.

“It’s a whole new way of building homes,” LaRue says. “It makes no sense not to do it.” Interested buyers tour the \$169,000 structure every day, peering at the monitors that measure the energy usage of nearly every appliance, fan, light and water spout.

GreenBuilt will begin working on two more homes, on West 54th Street in a promising development known as EcoVillage Cleveland, next month.

Radiating a quarter-mile from the Greater Cleveland Rapid Transit Authority’s decrepit West 65th Street station, the EcoVillage is a concerted effort to bring the principles of green building to this sliver of Cleveland.

“Who would have designed it like this?” says Manda Gillespie, of EcoCity Cleveland, a nonprofit environmental organization that is one of two primary partners in the EcoVillage. “Every area of the EcoVillage is paved over, the transit stop is hidden, and there’s a highway on one side.” The houses, however, are old, drafty and expensive to heat. In short, the neighborhood is fertile ground for seeding a new vision – of how things could be different.

Ecovillages have sprung up across the U.S. on green fields – suburban or rural spaces without development or infrastructure – or were implemented as “green neighborhood” initiatives, with community gardens, lead remediation and environmental education in the schools.

“Cleveland’s ecovillage is a radical attempt,” say Tom Eastman and David Rowe of the Detroit Shoreway Community Development Organization, EcoCity Cleveland’s partner, “to blend the best of the New Urbanism movement (walkability, visibility) with the best of the new Green Building movement (energy efficiency, healthy buildings).” Current EcoVillage projects include a community garden, bi-weekly workshops on simple home improvements at St. Colman’s Church,

and a new, \$3.9 million RTA station as centerpiece for the village’s revival. The RTA station, like Oberlin’s Lewis Center, will use passive and active solar energy to warm the station’s interior and power outside building signs.

Another group of green homes will spring up just a block from that new station on West 58th Street. The architects of Jim LaRue’s GreenBuilt home, Building Science Corporation of Westford, Massachusetts, were one of four initial firms selected by the Department of Energy for a “Building America” grant to work with builders to design more energy-efficient homes, including the EcoVillage homes.

In early February, the Building Science architects, along with Jim LaRue, builder Carlton Rush and EcoVillage organizers, gathered with community members for a design charette. Building Science Corporation founder Joseph Lstiburek, a national expert in the forensic science of buildings, was thrilled to be working on the project – the only one of its kind he’s seen, he says. An EcoVillage resident asked him whether the garages for the twenty new units should be attached to the houses or kept separate.

“An attached garage is unhealthy,” says Lstiburek. “You might as well park your car inside your house.” Carbon monoxide and chemical residue, he says, easily seep into a house from an attached

garage. Often, these fumes are responsible for carbon monoxide alarms deemed false by fire departments across the country. “That’s because the car has been moved out of the garage by the time the fire department arrives,” says Lstiburek.

“We’re not experimenting with these homes on West 58th,” says architect Betsy Pettit. “This isn’t about making a smart house. It’s a bad idea to try prototyping on an affordable house.” Instead, the homes will be simple to run, healthy and durable. LaRue will even create a homeowner’s manual to educate occupants about the energy-saving innovations – including leak-free building envelopes and highly efficient gas furnaces.

“These town homes will define how people perceive green building in Cleveland,” says Sadhu Johnston, who admits that the challenge for the designers of the development is to show passersby how the homes are different.

The Cleveland Green Building Coalition’s Web site www.clevelandgbc.org provides listings of local builders and resources for green-building projects. The coalition will host a workshop on green building, March 12 at 9 a.m. at the Cleveland Public Library, and another workshop (with Building Science Corporation architects) on integrating green design into residential building at the library on April 23. Call 216/732-3385 to register.



PHOTOGRAPH COURTESY OF TRINITY CATHEDRAL

Trinity Cathedral’s aggressive green renovation: recycled building materials, geothermal heating and 317 wells in the earth.